

## APPENDIX 13-12

### **DRAINAGE NOTE FORMAT**

In order to minimize the confusion that often results in applying construction notes to a drainage design, a “standard” format for drainage notes has been developed. This format includes the necessary items in a clear and concise manner and demonstrates the proposed design based on the normal method of construction. This format is structure oriented versus pipe oriented in that all the information regarding an individual drainage structure (inlet, outlet, and rim elevations) is contained in the note.

The sample Construction Plans shows a sample drainage layout, including removal items. As shown, the notes begin at the outlet end of the drainage run, the numbering sequence should continue to the highest point of the system. In general, removal notes should be separate from construction notes if separate pay items are used. If removal is subsidiary to a particular construction item, it should be included in the same note and labeled subsidiary.

Notes to construct a pipe run will begin with the station and offset location of each end of pipe running from downstream to upstream, followed by the note to construct the pipe (length x diameter x type). The note should include the concrete strength other than 2000 D (3000 D, 4000 D, etc.), pipe thickness or other unique characteristic.

If the pipe is at the end of a closed system, the outlet end is the next item depicted in the construct pipe note. For instance, construct end section or headwall (incl. type for each). The invert at the outlet end of pipe is given here (in the case of end sections, it should be clear that the invert is at the pipe).

Following the pipe, construction of the structure at the upstream end is to be described in the same note as follows:

- 1) Type of structure, diameter (if greater than 4 ft), unique features (i.e., slab top, eccentric cone, etc.), and station and offset location.
- 2) Top grate elevation (set at the binder course elevation). Metric elevation to the thousandth and english to the hundredth.
- 3) Invert elevations, as noted above, with description and locations, if needed (i.e., 24” INV. IN, 24” INV. IN (N), etc.).

When removal of existing pipe and/or structures is subsidiary, it will be described in the construction note. If payment is made for such removal, it typically will be described in a separate note.

Any specific outlet protection should be included as well, such as a stone fill. Erosion control/stormwater treatment measures can be described in a separate note. When outlet protection ditches and/or erosion control swales are constructed, a detail should be provided to show bottom widths, side slopes, stone type and thickness, bedding material, geotextiles, and any other information to clearly show the limits of pay items included.

Separate notes will be written for detention basin outlet structures and grading.

#### **Drainage Note Examples**

- 1 STA 200+62, LT 49'  
CONSTRUCT 36" PC-7 CONC. HEADWALL  
REMOVE EXIST. HEADWALL  
RELAY 8' OF 36" RCP TO MATCH PIPE LINE AND GRADE  
CONSTRUCT STONE FILL CLASS B (12'x16'x3')
- 2 STA 201+61, LT 38'  
CONSTRUCT 42" PC-7 CONC. HEADWALL  
REMOVE EXIST. HEADWALL  
RELAY 8' OF 42" RCP TO MATCH PIPE LINE AND GRADE  
CONSTRUCT STONE FILL CLASS B (18'x16'x3')
- 3 STA 201+50, LT 15' TO STA 201+25, LT 15'  
CONSTRUCT 20.2' X 15" PLASTIC PIPE  
CONSTRUCT CB-B AT +25, LT 15'  
GRATE = 619.72  
INV OUT = 615.00
- 4 STA 201+50, LT 39' TO LT 15'  
CONSTRUCT 24.0' X 24" CORR. POLYETHYLENE  
PIPE FOR SLOPE DRAINAGE  
CONSTRUCT 5' DIA CB-B AT +50, LT 15'  
GRATE = 619.59  
INV IN (N) = 614.00  
INV IN (S) = 614.50  
INV OUT = 613.75  
CONSTRUCT 24" PLASTIC END SECTION
- 5 STA 201+50, LT 15' TO STA 203+00 LT 25.9'  
CONSTRUCT 144.4' X 24" PLASTIC PIPE  
SWEEP AROUND GUARDRAIL  
CONSTRUCT CB-B AT +00, LT 25.9'  
GRATE = 620.47  
INV IN = 615.50  
INV OUT = 615.25
- 6 STA 201+88, RT 34.1' TO STA 206+79, RT 26'  
CONSTRUCT 500.9' X 6" PERF. CORR. POLY. PIPE UND.  
CONSTRUCT MRM UL-4 HEADWALL AT +88, RT 34.1'  
INV OUT = 615.50
- 7 STA 203+00, LT 25.9' TO STA 204+21, LT 15'  
CONSTRUCT 115.6' X 24" PLASTIC PIPE  
CONSTRUCT 5' CB-B AT +21, LT 15'  
GRATE = 625.49  
INV IN 24" = 620.00  
INV IN 15" = 619.25  
INV OUT = 619.00

